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ABSTRACT

The basis on which Yale University and other private institutions set annual tuition levels and long-term pricing policies is considered. The rising cost of private higher education is examined in relation to historical trends, economic data (price and income inflation), the financial condition of the institution, comparative cost data from other schools, and studies of the impact of cost on enrollment. Information is provided on the following: the growth of Yale's undergraduate tuition rates and total student charges (i.e., tuition plus room and board) over the past three decades: the changing role that tuition and room and board income has played in Yale's overall financial picture over the past 10 years: one method of calculating the full cost of a Yale education in 1970-71 and 1979-80: the actual dollar gaps and the ratios between undergraduate student charges at Yale and at four basic categories of higher education institutions (public and private four-year universities and public and private universities): and tuition and room and board charges at the eight Ivy League schools plus M.I.T. and Stanford. The results suggest that current educational costs, despite their recent rapid increases, are not significantly above historical levels (after adjusting for inflation), are not unfair to students, are affordable to most families, and are in line with the costs of other private institutions. In addition, no serious impact on the quality or diversity of the student body was indicated by the analysis, which suggests that Yale's major competitors, as well as private institutions generally, follow a similar pricing policy. A bibliography is appended. (SW)

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THE RISING COST OF PRIVATE HIGHER EDUCATION

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Mary Corcoran
University of Minnesota
(Editor, AIR Forum Publications)

Abstract

The report illustrates the informational and analytical basis on which one high-cost institution--Yale University--sets its annual tuition levels and long-term pricing policies. The rising cost of private higher education in general, and a Yale education in particular, is examined in a context that takes into account historical trends, economic data (price and income inflation), the financial condition of the institution, comparative cost data from other schools, and studies of the impact of cost on enrollment. The results suggest that current educational costs, despite their recent rapid increases, are not significantly above historical levels (after adjusting for inflation), are not unfair to students, are affordable to most families, and are in line with the costs of other private institutions. No serious impact on the quality or diversity of the student body was discovered.

THE RISING COST OF PRIVATE HIGHER EDUCATION

The rising cost of higher education, particularly at private institutions, has received a great deal of attention recently on our campuses, in the literature on higher education research, and in the media. The reasons for all this attention are not hard to understand, for this spring hardly a week seems to go by without yet another school announcing a double-digit tuition increase or student charges running to five figures. These announcements are sure to be headlined in the student newspaper, and occasionally will provoke student protests even in these days of relative calm on our campuses. "What to do about rising costs?" is a popular topic in our professional journals and meetings. And articles about rising costs, their causes, and their consequences appear with some regularity not only in The Chronicle of Higher Education but also in Time and the daily newspapers.

Certainly there is reason for concern about the rising cost of private higher education, for those costs have a far-reaching impact on the financial condition of an institution, on the family budgets of its students, and on the size and composition of its student body. Yet the alarm which has greeted many of the recent tuition announcements is perhaps unwarranted, for it is based on a set of assertions that often do not hold up under close scrutiny--to wit, higher education costs more (and is worth less) today than at any time in our history; students and their families simply can no longer afford those costs; the tuition gap between private and public institutions is growing; or, private education is pricing itself out of the market for an ever-larger share of ever-smaller cohorts of college-age youth. We therefore need to reexamine these trends and assumptions, for many of them take on entirely different meanings if viewed from

a broader context, one which takes into account recent changes in the national economy, in higher education generally, and in the financial condition of a particular institution. The purpose of this paper is to provide such a reexamination.

The paper is written from the perspective of one particular institution--Yale University. As one of the highest-priced schools in the country, Yale finds itself facing problems in this area which, while perhaps not altogether common, are nevertheless far from unique. The analysis brings together information from several sources--the empirical literature, Yale's own financial and admissions trends, and comparative cost data from other schools--in seeking answers to the following six questions about the cost of a Yale education:

1. How much has it grown in recent years?
2. Why has it grown so rapidly?
3. Can students and their families afford it?
4. How does it compare with other schools?
5. How has it affected students' decisions about enrolling at Yale?
6. How fast will it grow in the future?

The answers to these questions provide the basis on which Yale sets annual tuition levels and long term pricing policies. The results of the study should have broad appeal, however, for they suggest that at least at one high-priced institution, the pricing policy is sound and the tuition level is reasonable despite its recent growth.

How Much has the Cost of a Yale Education Grown in Recent Years?

Figure 1 plots the growth of Yale's undergraduate tuition rates and total student charges (i.e., tuition plus room and board) over the past three decades, expressed both in current dollars and in dollars with constant purchasing power (constant 1950 dollars).[1] During that period, tuition grew almost twelve-fold--from $600 in 1950-51 to $7,150 in 1981-82--for a compound annual growth rate of 8.3%. Room and board rates grew more slowly than tuition, but total student charges still grew at an annual rate of almost 7%--from $1300 in 1950-51 to $10,340 in 1981-82. Furthermore, "nominal" growth rates (i.e., the growth rates of current dollars) were even higher during the most recent decade than they were in the 1950's and 1960's (see Table 1).

When expressed in constant dollars, the "real" growth rates for tuition, room and board charges have been far below the nominal rates. Perhaps more importantly, the whole pattern of cost increases over the past thirty years changes when costs are measured in constant rather than current dollars. Thus what at first appears to be faster growth during the most recent ten-year period is actually slower growth after adjusting for the effects of the very high rates of inflation in recent years. In fact, when measured in constant dollars, the cost of a Yale education grew at a compound annual rate of <u>less than one percent</u> between 1972-73 and 1980-81.

The different growth rates shown in Table 1 illustrate that Yale's room and board charges have been pegged very closely to the inflation rate, particularly during the past ten years. Tuition, on the other hand, has outpaced inflation by almost 4% per year over the entire thirty-year period and by almost 2% per year even during the highly inflationary period of the past decade. This means that

the cost of a Yale education relative to the cost of other goods and services in the economy (or relative to the cost of most other items in a family's budget) has increased. Families have therefore had to forego the consumption of increasing amounts of other items in order to send a child to Yale. Whether they are able to meet those costs (much less willing to make the sacrifices) is a question considered in a later section.

An historical footnote. Lest you think that tuition increases are a recent phenomenon, let me assure you that they have been a fact of life at Yale for well over 250 years. Although Yale was founded in 1701 as a tuition-free institution, by 1718 students were being charged 30 shillings per year, an amount which grew to 50 shillings by 1726 (that's a 67% increase in just eight years). Tuition continued to grow during the eighteenth century, and Yale also began to impose a set of incidental charges for everything from "Public Entertainment" (30 shillings) to a coal bin (16 pence per quarter) to sweeping (3 halfpence per week). By the late 1700's, however, the Yale treasury found itself depending more and more on tuition in order to pay competitive faculty salaries, so tuition grew rapidly: from $16 a year in 1795 to $24 a year in 1807, and to $33 per year in 1815 (where it remained until 1856). During the nineteenth century, a pattern evolved whereby a period of fairly rapid increases in tuition would be followed by a period of slow or no growth (and in at least one instance, an actual decrease). So by the turn of the twentieth century, tuition had increased only to $155 per year, where it held for almost twenty years; it then grew to $450 per year by 1930, where it held until 1946. As shown in Figure 1, tuition increases have come more regularly in recent decades. The one gleam of optimism which this story might hold for us is that, if the historical pattern holds true, perhaps we are soon to find ourselves in a period of slower tuition growth.

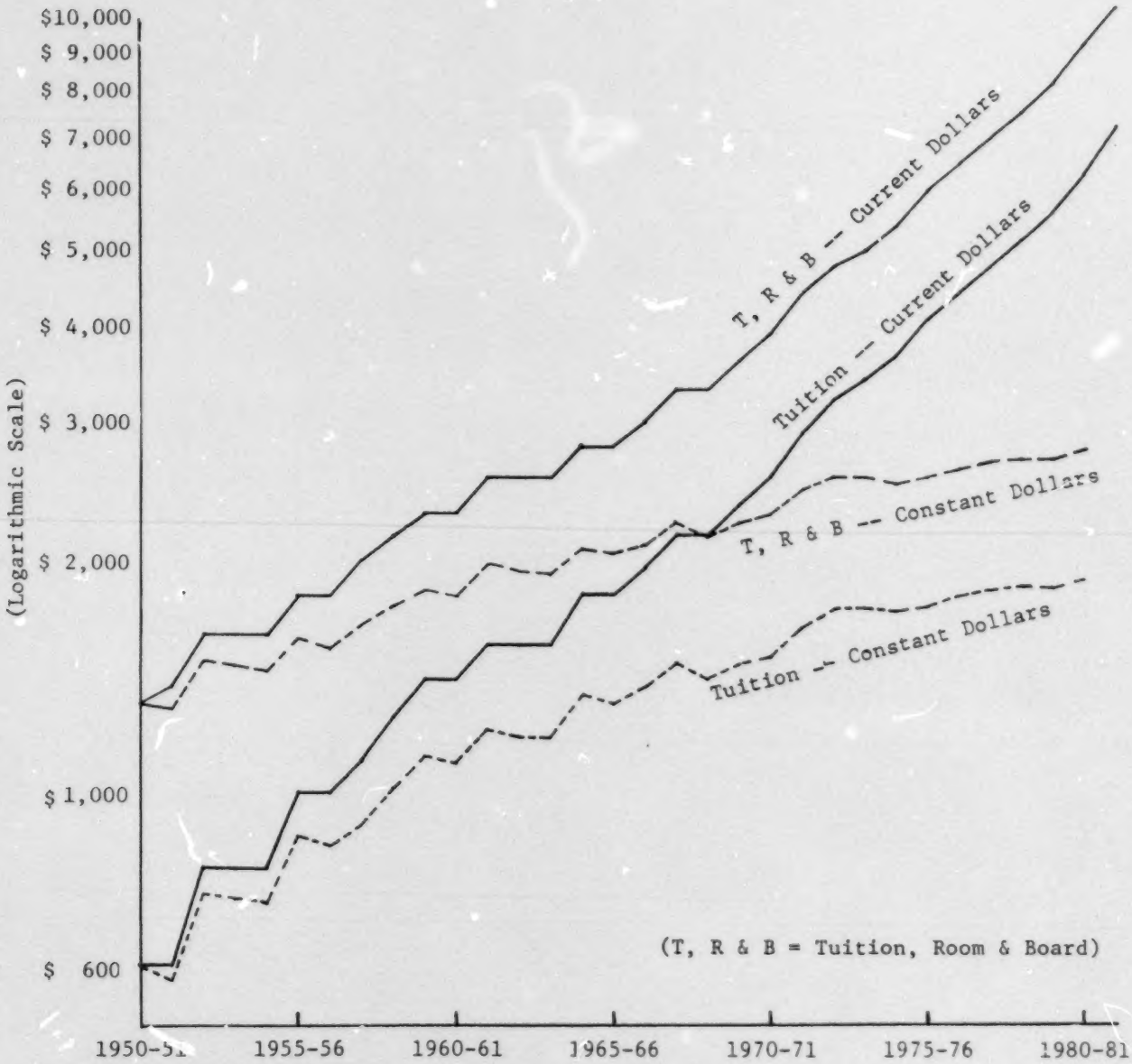

Figure 1: Yale College Tuition and Total Student Charges in Current and Constant (1950) Dollars, 1950-51 through 1981-82

Notes: The vertical axis is plotted on a logarithmic scale which measures relative increases in tuition and total student charges. Equal intervals therefore indicate equal percentage increases, though larger absolute increases, the farther you move up the scale.

Constant dollar calculations are based on the GNP Implicit Price Deflator.

Table 1

Compound Annual Growth Rates

	30-Year Growth		10-Year Growth	
	Nominal	Real*	Nominal	Real*
Student Charges (1950-51 through 1981-82)				
Tuition	8.32%	3.90%	9.44%	1.95%
Room and Board	5.01%	0.73%	7.84%	0.46%
Total	6.92%	2.56%	8.92%	1.47%
Median Income for Families with Age of Head 45 - 54 (1950 through 1979)	6.88%	2.86%	3.81%	1.86%
GNP Implicit Price Deflator (1950 through 1981**)	--	4.25%	--	7.35%

* Real growth rates based on GNP Deflator.

** Estimated at 10% above 1980 calendar year average.

Why has the Cost of a Yale Education Grown so Rapidly?

Almost invariably, announcements of tuition increases are accompanied by discussions of spiraling inflation, explosive energy costs, record wage increases that do not keep pace with the rising cost of living, higher social security taxes, and the like. More detailed analyses of the forces underlying tuition increases often point to the fact that many institutions have been compelled to turn to tuition, one of the last truly discretionary items in their budgets, to make up for the failure of income from other sources to keep pace with rising expenses. As a result, tuition income constitutes a larger and larger share of the total income of many private institutions. And although Nelson (1978) has found that this trend is not true (as is commonly believed) for private institutions generally, it does prove to be valid for research and doctoral-granting institutions, and it is certainly true for Yale.

Table 2 demonstrates the changing role which tuition, room and board income has played in Yale's overall financial picture over the past ten years. In particular, it shows that income from student charges increased from 21% to 25% of the University's total income during this period, and was in fact the fastest-growing source of unrestricted income. (N.B. The rapid growth of the "Other" income category is primarily due to the growth of Medical Services income, and as such is restricted to Medical School use.) Tuition, room and board <u>income</u> actually grew faster than did tuition, room and board <u>rates</u> because of higher enrollment in all schools of the University. Clearly the reason why income from student charges took on this more important role was the failure of income from investments and gifts to keep pace with the growth of expenses, particularly the very rapid growth in utility costs. Finally, note that the growth of personnel expenses--salaries, wages and benefits--has not kept pace

Table 2

Yale University Operating Income and Expenses
1970-71 to 1980-81
($ in Millions)

	1970-71		1980-81		Compound Annual Growth Rate
	$	% of Total	$	% of Total	
INCOME					
Tuition, Room & Board:					
Undergraduate	$ 17.8	13.9%	$ 45.3	15.6%	9.8%
Grad. & Professional	9.6	7.5	27.4	9.4	11.1
Total	27.4	21.4	72.7	25.1	10.3
Grants & Contracts	45.9	35.8	103.7	35.7	8.4
Investments	30.4	23.7	40.3	13.9	2.9
Current Gifts	7.5	5.9	11.1	3.8	4.0
Other	17.0	13.3	62.0	21.4	13.8
Total Income	$128.2	(100.0%)	$290.1	(100.0%)	8.5%
EXPENSES					
Salaries, Wages & Benefits	$ 75.1	57.4	$160.2	55.2%	7.9%
Student Gift Aid	15.1	11.5	27.7	9.5	6.3
Utilities	2.9	2.2	19.8	6.8	21.2
Other	37.7	28.8	82.4	28.4	8.1
Total Expenses	$130.8	(100.0%)	$290.1	(100%)	8.3%
SURPLUS/(DEFICIT)	$ (2.6)		$ 0		

with the economy-wide growth of income since 1970-71 (8.8%, as measured by Median Family Income), which suggests that not only students but also faculty and staff have been called upon to contribute to the University's efforts to achieve a balanced budget.

The reasons for the rapid growth in the cost of a Yale education can also be understood by examining the growth in the cost of providing that education. As has long been stressed by Yale's Development Office and Alumni Fund, tuition pays only a portion of the "full cost" of a Yale education, while income from other sources--particularly investments and gifts--must make up the rest. Since the growth of income from these other sources has not kept pace with the growth of the full cost of a Yale education (i.e., the growth of total University expenses), then obviously tuition must now cover a larger share of the full cost than it did ten years ago. It is therefore useful to include in this analysis some rough estimate of what tuition levels would be if they were not "subsidized" by income from other sources.

Table 3 shows one method of calculating the full cost of a Yale education in 1970-71 and 1979-80 (the most recent year for which data are available). The figures include only those expenses related to the cost of undergraduate education, i.e., they exclude all expenses associated with undergraduate room and board, the Graduate and Professional schools, sponsored research, income-producing activities, and a prorated share of the net expenses for academic and support services and the central University administration. The results of this analysis suggest that the full cost of an undergraduate education at Yale in 1979-80 was $9,688 compared to $6,552 ten years earlier. Thus the gap between the full cost and the tuition rate has increased only from $4,002 a decade ago to $4,138 last year, while the percentage of the full cost that is covered by

Table 3

The Cost of Providing a Yale Education
1970-71 and 1979-80

	1970-71	1979-80
Net Expense by Department ($000)		
Faculty of Arts & Sciences	$ 27,768	$ 49,681
Athletic Department	1,587	4,247
Library (67%)	3,918	8,175
Academic Services (67%)	2,850	3,392
Central Services (67%)	1,910	118
University Administration (67%)	3,123	1,392
Total	$ 41,156	$ 67,005
Less Graduate School Expenses ($000)	$ 10,289	$ 16,751
Total Full Cost of Yale College ($000)	$ 30,867	$ 50,254
FTE Enrollment	4,711	5,187
Average Full Cost per Student	$ 6,552	$ 9,688
Tuition	$ 2,550	$ 5,550
Gap between Full Cost and Tuition	$ 4,002	$ 4,138
Tuition as % of Full Cost	39%	57%

Notes and Assumptions:

This table includes educational costs only. Room and board expenses are excluded on the assumption that they are fully offset by room and board income.

All expense totals are net of reimbursements for sponsored research and other related activities. Net expenses therefore include only those expenses covered by income from tuition plus a prorated share of investments and gifts.

Expenses for the Library, Academic Services, Central Services, and University Administration are allocated between FAS and the Professional schools in the same approximate proportion as their respective budgets--67% FAS and 33% Professional Schools. Due to accounting changes, a greater share of the costs of these centralized units has been distributed to the separate schools in 1979-80 than in 1970-71, but the "bottom line" costs are comparable.

FAS expenses are allocated between Yale College and the Graduate School in the same approximate proportion as FTE enrollments--75% Yale College and 25% Graduate School.

tuition has in fact increased from 39% to 57% over the nine-year period. Tuition, in other words, has grown at a faster rate than the full cost, although not quite fast enough to cover the entire increase in full costs. In short, students are still getting a very "good buy" for their tuition dollars, though not quite as good a buy as students got ten years ago.

Can Students Still Afford a Yale Education?

The general price inflation that has occurred in the economy over the past three decades has been accompanied by even larger increases in family income. Although the real growth rate of income has tapered off during the past few years because of the unusually high levels of inflation, median family income has still increased at a real rate of almost 3% per year over the thirty-year period (see Table 1). The most important thing to note about the growth of median family income, however, is that it has so closely paralleled the growth in the cost of a Yale College education over such a long period of time. As shown in Figure 2, total student charges have remained between 31% and 35% of median family income for the past fifteen years, and have actually declined as a percentage of family income since the early 1960's.

Whether the growth in real income signifies a corresponding growth in the ability of families (particularly middle income families) to pay the rising cost of a Yale education is a more difficult and controversial question.[2] Because tuition has increased faster than inflation (and thus has grown relative to the prices of most other items in a family's budget) over the past decade, there is a <u>perception</u> by many families that education costs are rising faster than their ability to meet those costs. Furthermore, the argument has been put forth that

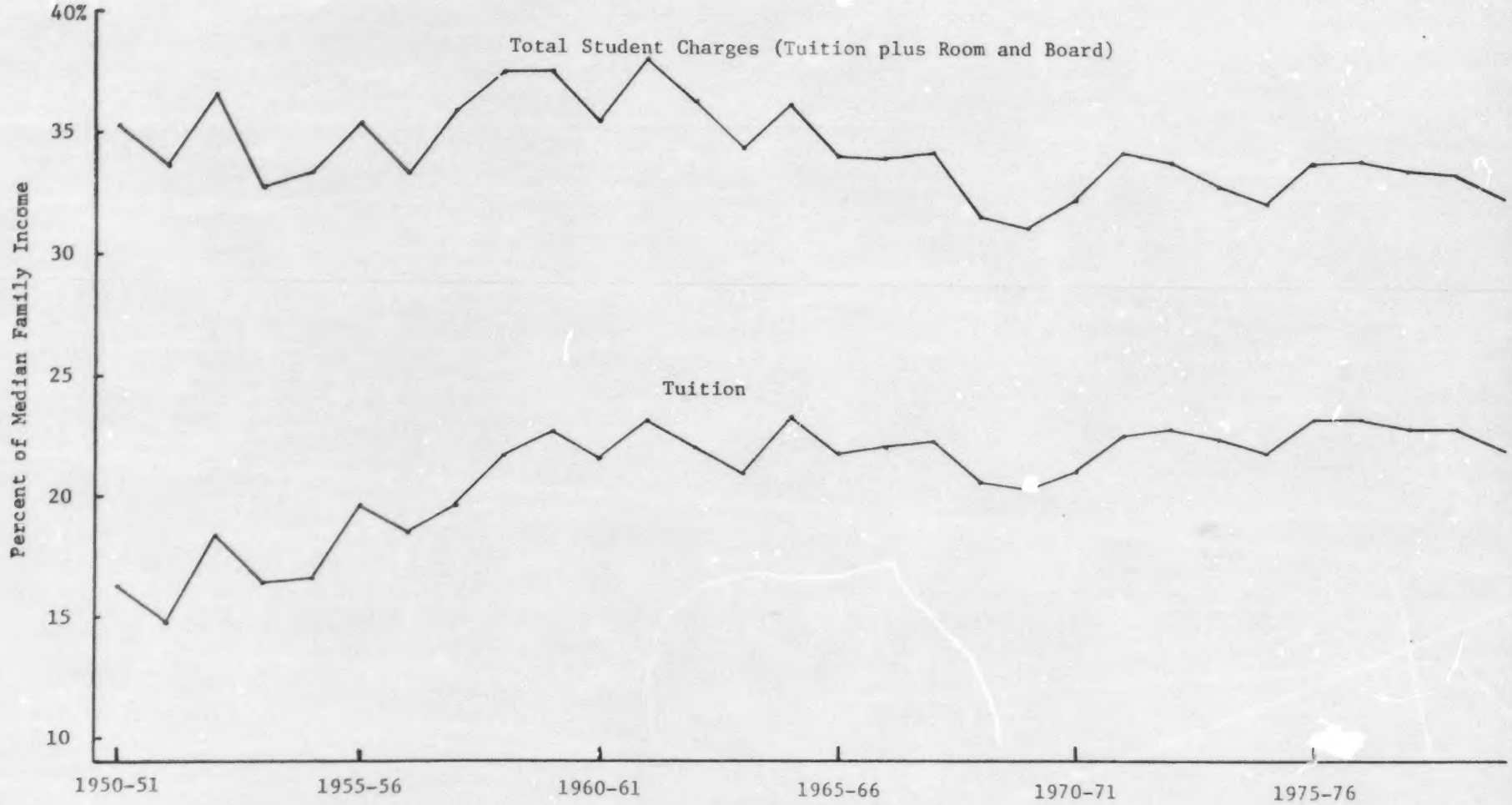

Figure 2: Yale College Tuition and Total Student Charges as a Percentage of Median Family Income (Age of Head of Household 45 - 54), 1950-51 to 1979-80

during periods of especially high inflation, families must spend increasing amounts of their income for basic necessities like food, housing and energy; as a result their "discretionary" income goes down. If higher education is viewed as an expense paid out of such discretionary income, then a family's ability to meet those expenses also goes down. However, this situation is more the result of the choices a family makes about how it will spend its income--in other words, its willingness to pay the cost of a Yale College education and thus to forego consumption in other areas--than its ability to pay.

It should be emphasized that all of these questions about the relationship between educational expenses and a family's ability to pay pertain primarily to students from upper and upper-middle income families who are able to pay the full rate. Under Yale's current policies, around 40% of the undergraduate student body qualify for need-based financial aid. For those students, the relevant figure is not total student charges but the "expected family contribution" (i.e., the amount which a family should reasonably be able to contribute toward the education costs of its children or other members, given its income, assets, and particular financial situation). In recent years, the question has been raised as to whether the formula for calculating the family contribution properly takes into account the impact of inflation, taxes, and other changing conditions on a family's "disposable" income, and hence on its ability to pay college costs. Once again, the underlying issue is the difficult question of how much a family should reasonably be expected to sacrifice in order to educate its children. Results presented elsewhere suggest that for most families these expected sacrifices are not increasing to any significant degree, for not only tuition (for non-aid students) but also expected family contributions (for students who qualify for aid) are rising at about the same rate as family income.

How Does the Cost of a Yale Education Compare with Other Schools?

Perhaps the single most important consideration in determining Yale College tuition is the question of how it compares with tuition at other schools. This section presents two sets of such comparisons--the first with average student charges at a broad spectrum of colleges and universities, and the second with a more limited group of Yale's major "competitors."

Table 4 shows the actual dollar gaps and the ratios between undergraduate student charges at Yale and at four basic categories of higher education institutions: public universities, public four-year colleges, private universities, and private four-year colleges.[3] The results show that cost differences between Yale and public institutions have increased steadily over the past twenty years in both absolute and relative terms. By 1979-80 (the last year for which data in this series are available), Yale College tuition had grown to between six and nine times the tuition at public institutions, with a tuition gap approaching $5,000. Room and board charges also were higher at Yale than at public institutions, though the size of the gap was nowhere near as large in either absolute or relative terms. Yale's total student charges, however, averaged around three times those at public universities (a $5500 gap) and four times those at public four-year colleges (a gap of over $6,000).

On the other hand, the gap between educational costs at Yale and at other private institutions is much smaller than for public institutions, and has changed little over the past twenty years. Yale's tuition has remained around 1.4 times average tuition at other private universities and 1.8 times average tuition at private four-year colleges. For total student charges, the multiples are now 1.3 for universities (a $1650 gap) and 1.7 for colleges (a $2400 gap).

Table 4

The Cost Gap Between Yale College and Other Categories of Institutions

		1961	1967	1974	1980
Tuition					
Yale College versus Public Universities	$ Gap	$1118	$1600	$2812	$4710
	Ratio	5.0 : 1	5.6 : 1	5.8 : 1	6.6 : 1
Yale College versus Public 4-year Colleges	$ Gap	$1225	$1663	$2950	$4905
	Ratio	8.0 : 1	6.8 : 1	7.6 : 1	8.6 : 1
Yale College versus Private Universities	$ Gap	$ 417	$ 461	$1007	$1657
	Ratio	1.4 : 1	1.3 : 1	1.4 : 1	1.4 : 1
Yale College versus Private 4-year Colleges	$ Gap	$ 663	$ 804	$1462	$2407
	Ratio	1.9 : 1	1.7 : 1	1.7 : 1	1.8 : 1
Private versus Public Universities	$ Gap	$ 701	$1139	$1805	$3053
	Ratio	3.5 : 1	4.2 : 1	4.1 : 1	4.6 : 1
Private versus Public 4-year Colleges	$ Gap	$ 562	$ 859	$1488	$2498
	Ratio	4.2 : 1	4.0 : 1	4.3 : 1	4.9 : 1
Total Charges (Tuition plus Room and Board)					
Yale College versus Public Universities	$ Gap	$1296	$1816	$3289	$5526
	Ratio	2.3 : 1	2.5:: 1	2.9 : 1	3.1 : 1
Yale College versus Public 4-year Colleges	$ Gap	$1541	$2013	$3618	$6036
	Ratio	3.0 : 1	3.0 : 1	3.6 : 1	3.9 : 1
Yale College versus Private Universities	$ Gap	$ 477	$ 513	$1307	$2161
	Ratio	1.3 : 1	1.2 : 1	1.4 : 1	1.4 : 1
Yale College versus Private 4-year Colleges	$ Gap	$ 882	$1002	$1937	$3341
	Ratio	1.6 : 1	1.5 : 1	1.6 : 1	1.7 : 1
Private versus Public Universities	$ Gap	$ 819	$1303	$1982	$3365
	Ratio	1.8 : 1	2.1 : 1	2.2 : 1	2.3 : 1
Private versus Public 4-year Colleges	$ Gap	$ 655	$1011	$1681	$2695
	Ratio	1.9 : 1	2.0 : 1	2.2 : 1	2.3 : 1

Source: Halstead, D. K. Higher Education Prices and Prices Indexes: 1978 Supplement. (Washington, D. C.: U. S. Dept. of HEW, 1978).

Data for the current year suggest that these trends in cost differences between Yale and other types of institutions are continuing unabated. As compared to Yale's 12% tuition increase, the National Center for Education Statistics has estimated that 1980-81 tuition levels grew an average of 10% in public universities, 11% in public four-year colleges, 14% in private universities and 16% in private four-year colleges (NCES, 1980). Early returns for 1981-82 indicate that average tuition increases at private institutions could once again exceed Yale's 15% increase (Magarrell, 1981). If anything, therefore, Yale is "narrowing the gap" between itself and other private institutions.

Another important comparison shown in Table 4 is the tuition gap between the public and private sectors of American higher education, a gap which appears to be growing in both absolute and relative terms. Tuition at a private university now averages around four-and-a-half times tuition at a public university, while for four-year colleges the multiple has grown to almost five. One recent analysis has concluded, however, that "reports of a widening tuition gap (at least in income-deflated terms) are widely exaggerated". That report examined the long-term changes in the public-private tuition gap and found that, "over time, the difference between public and private tuition has not risen faster than the ability of parents to pay" (McPherson, 1978, pp. 162-163). Halstead (1978) has discovered, furthermore, that there is a corresponding (and in some ways offsetting) gap between public and private <u>expenditures</u> per student, and this gap has increased even faster than the tuition gap. Despite its rising cost, therefore, private higher education is actually a "better buy" (i.e., the student gets more in return for each tuition dollar) when compared to public higher education now than it was twenty years ago.

Despite these notes of optimism, it is clear that at least certain segments of the private sector--particularly the less selective liberal arts colleges--will find their current financial difficulties exacerbated by a growing public-private tuition gap. This is particularly true since the intensified price competition hits on top of two other forces that will threaten future enrollment levels--demographic changes (i.e., the declining size of the college-age population) and the declining economic return from a college education (i.e., the weak market for college-educated labor). For selective institutions like Yale, on the other hand, these forces will have more of an impact on the composition (particularly the economic diversity) of their student body than on its size. A later section of this report reviews what indications we have about the effect these forces already seem to be having on enrollment.

Table 5 presents a more focused and perhaps relevant set of comparisons--tuition, room and board charges at the eight Ivy League schools plus M.I.T. and Stanford. This is the group of selective, high-cost schools which are Yale's primary competitors for students. The first thing to notice in Table 5 that Yale is no longer the most expensive school in the Ivy League, a position it held throughout the early 1970's. Over the past nine years, the growth rate of Yale's tuition has been one of the lowest in the entire group, a trend which will continue at least through next year. The growth rate for Yale's room and board charges has been about average for the group, which means that the growth of Yale's total student charges is also quite low relative to the other schools shown. The effect of Yale's pricing decisions has been to allow other schools to "catch up" in terms of student charges, especially in tuition. Thus Yale now has the third-highest tuition level, the fifth-highest room and board rates, and the third-highest total cost. A more general pattern shown in Table 5 is that

Table 5

Tuition, Room and Board Rates at Ivy League Schools, M.I.T., & Stanford

	1972-73	1980-81	1981-82	Growth Rate (Through 1981-82) 9-Year	1-Year
Tuition & Fees					
Brown	$3,050 (3)	$6,140 (5)	$7,120 (5)	9.9%	16.0%
Columbia	3,000 (6)	5,730 (10)	6,700 (10)	9.3	17.0
Cornell (A & S)	3,000 (6)	5,930 (9)	7,000 (7)	9.9	18.0
Dartmouth	3,060 (2)	6,075 (6)	7,050 (6)	9.7	16.0
Harvard	3,000 (6)	6,000 (7)	6,930 (8)	9.7	15.5
M.I.T.	3,015 (5)	6,200 (4)	7,400 (1)	10.5	19.4
Pennsylvania	3,000 (6)	6,000 (7)	6,900 (9)	8.0	15.0
Princeton	3,050 (3)	6,300 (1)	7,250 (2)	10.1	15.1
Stanford	2,850 (10)	6,285 (2)	7,140 (4)	10.7	13.6
Yale	3,200 (1)	6,210 (3)	7,150 (3)	9.3	15.1
Average	$3,023 -	$6,087 -	$7,064 -	10.7%	16.1%
Range	$350 (12%)	$570 (10%)	$700 (10%)		
Room & Board (Actual, typical or average)					
Brown	$1,400 (8)	$2,575 (8)	$2,910 (7)	8.5%	13.0%
Columbia	1,400 (8)	2,920 (3)	3,280* (3)	9.9	12.3
Cornell (A & S)	1,585 (3)	2,500 (9)	2,760 (9)	6.4	10.4
Dartmouth	1,435 (7)	2,665 (6)	2,983 (6)	8.5	11.9
Harvard	1,745 (1)	3,170 (1)	3,610 (1)	8.4	13.9
M.I.T.	1,635 (2)	2,800 (4)	3,180 (4)	7.7	13.6
Pennsylvania	1,426 (6)	2,950 (2)	3,300* (2)	9.8	12.0
Princeton	1,555 (4)	2,461 (10)	2,744 (10)	6.5	11.5
Stanford	1,295 (10)	2,636 (7)	2,900 (8)	9.4	10.0
Yale	1,550 (5)	2,900 (5)	3,190 (5)	8.3	10.0
Average	$1,503 -	$2,758 -	$3,086 -	8.3%	11.9%
Range	$450 (35%)	$709 (29%)	$866 (32%)		
Total					
Brown	$4,450 (7)	$8,715 (8)	$10,030 (7)	9.4%	15.1%
Columbia	4,400 (9)	8,650 (9)	9,980 (9)	9.5	15.4
Cornell (A & S)	4,585 (5)	8,430 (10)	9,760 (10)	8.8	15.8
Dartmouth	4,495 (6)	8,740 (7)	10,033 (6)	9.3	14.8
Harvard	4,745 (2)	9,170 (1)	10,540 (2)	9.3	14.9
M.I.T.	4,650 (3)	9,000 (3)	10,580 (1)	9.6	17.6
Pennsylvania	4,426 (8)	8,950 (4)	10,200 (4)	9.7	14.0
Princeton	4,605 (4)	8,761 (6)	9,994 (8)	9.0	14.1
Stanford	4,145 (10)	8,921 (5)	10,040 (5)	10.3	12.5
Yale	4,750 (1)	9,110 (2)	10,340 (3)	9.0	13.5
Average	$4,525 -	$8,845 -	$10,150 -	9.4%	14.8%
Range	$605 (15%)	$740 (9%)	$820 (8%)		

* Estimated

student charges at schools which were relatively low-priced in 1972-73 (e.g., Stanford) have grown the fastest over the past few years, while charges at the higher-priced schools (e.g., Yale) have grown more slowly. The net result of those differential growth rates is that there is now less variation among schools in terms of cost (i.e., less "price competition") than there was in prior years.

How have Rising Costs Affected Enrollment?

The concern about the cost of a Yale education is in large part a concern that students will choose to attend other, lower-cost schools rather than Yale solely or primarily for reasons of cost. Because this is an issue of such far-reaching importance, both for Yale and for the high-cost private sector generally, it has been the focus of a great deal of research and speculation. Unfortunately, no one seems to have the complete or fully-agreed-upon answer to the question of what impact cost has on demand for higher education generally or for private higher education in particular, much less what impact it has on enrollment decisions at a specific institution. This section reviews what systematic evidence does exist in the literature, as well as relevant data about the impact of cost on Yale enrollment.

Because there are so many factors that influence a student's decision about whether and where to attend college, it is difficult to separate out the effects of price (i.e., student charges, perhaps net of student aid) from the effects of non-price factors (e.g., the student's academic ability, family income, advice and encouragement from family and counselors, the admissions selectivity of an institution, or its geographic location). In an excellent review and critique of the literature in this area, McPherson (1978) has concluded that price affects

the decision about whether to attend college for low-income students and affects the decision about where to attend college for high-income students. This latter phenomenon is most evident, and most disturbing, as it affects students from families whose income is between one and two times median family income--roughly $25,000 to $50,000. These students face a substantially wider tuition gap relative to their ability to pay than either very rich or very poor students. (Many low-income students may in fact find private institutions to be cheaper than public institutions because of differences in financial aid policies.) As the public-private tuition gap widens, therefore, high-income students are attracted to public institutions, as evidenced by the distinct drop-off in percentage terms in the representation of upper-middle income students in private higher education in the past decade.

An analysis of Yale's own application and enrollment trends provides no clear indication of what effect cost is having on those trends. However, there is some indication that the kind of shift described above has also occurred at Yale. For example, Yale (along with many other selective private institutions) has experienced steady growth in the size of the undergraduate applicant pool, which this year reached an all-time high of 11,300. Our "admit rate" therefore fell to below 20%. On the other hand, there has been a clear shift toward more financial aid applicants, who this year constituted 60% of the pool as compared to less than 50% five years ago. Whether this indicates a relative decline in the number of applicants from high-income families or merely a greater tendency for those applicants to apply for aid (given Yale's costs and the way our aid policies are presented) is unclear. Because we do not gather family income data on all applicants (only for financial aid applicants), we have no way to confirm or disconfirm any such trend in the "affluence" of our applicant pool.

An examination of trends in Yale's yield (the percentage of admitted applicants who choose to enroll) reveals a similar "good news/bad news" scenario. On the positive side, yield has increased sharply over the past five years (to over 60% the past two years), after having declined steadily during the early 1970's. However, we are concerned that almost all of this increase has occurred among non-aid applicants, to the extent that there is now a sizeable gap between the yields in the aid and non-aid categories. The implication is that while Yale College is becoming increasingly attractive to students who can afford to pay the full cost, a similar trend is not evident among students who rely on financial aid. An even more disturbing pattern is a tendency for the yield among students with low to moderate levels of need to be lower than yields among no-need or high-need applicants. This suggests that our aid packages are not as competitive for middle-income students as for very low-income students. Moreover, because a similar pattern often appears at other Ivy League schools, it seems that we are losing middle income students not to other high-cost institutions but to lower-cost schools. These findings are therefore fully consistent with the more general conclusions described above about the effects of cost on enrollment.

To close this discussion on a positive note, it is useful to review the findings of a study conducted by Richard Spies, Associate Provost at Princeton University, that addressed the college applications decisions (not enrollment decisions) of high-ability students to selective institutions. Although the results of Spies' study have been controversial since they first appeared, especially since other studies have found that financial considerations have a considerable impact on the college choice process, they are particularly relevant to (and presumably valid for) Yale's situation. Spies concluded:

> The results of this study largely substantiate the findings of a few years ago [Spies, 1973]: for high-ability students, the ability of the prospective applicant and the academic reputation of the institution are much more important in the choice of a college than the financial considerations of price and family income. . . (S)tudents with above-average academic ability are less affected by the high price of independent higher education than they are by their perceptions of the academic reputation of the institution. . . In general, (these results) should be encouraging to the high-priced, selective institutions. In a broad sense, they suggest that institutions placing the highest priority on preserving and strengthening their academic programs during a time of financial constraint should have more success attracting qualified students than they would if they concentrated on cutting costs in an attempt to minimize tuition increases. The evidence suggests that if an institution is perceived to be providing education of high quality, able students from a wide range of economic and social backgrounds will apply. The results reaffirm . . . that this pattern has changed little since the earlier study was conducted in 1971, despite the significant increases in tuition and other student charges during this period. (Spies, 1978, pp. 8-9).

How Fast will the Cost of a Yale Education Grow in the Future?

Yale's de facto pricing policy has been to grow tuition at roughly the same rate as a family's ability to pay--the level of <u>income</u> inflation in the economy. Room and board charges have been pegged to the rising cost of providing those services--the level of <u>price</u> inflation. Tuition, room and board rates are in fact tied directly to inflation in the University's financial planning model

(which projects that total student charges will grow at roughly 1.5% above the inflation rate, or at about the historical growth rate of median family income). Thus any effort to predict how fast the cost of a Yale education will grow in the future must be based on assumptions about inflation, and any hope for a slow-down in rising educational costs would seem to rest on a reduction in the underlying inflation rate.

The analyses presented here suggest that Yale's major competitors, as well as private institutions generally, follow a similar pricing policy. Therefore, if, as some people fear, Yale does begin to price itself out of the market for any important segment of our traditionally diversified applicant pool, we will at least have a lot of illustrious company. In short, the problem of the rising cost of private higher education is one which cannot be addressed by Yale alone by unilaterally holding down the growth of those costs, but must be faced instead by the entire sector of private higher education in this country.

One final implication of the analyse presented herein is that the whole issue of rising student costs is one which deserves decidedly less attention than it has received in recent years. For the 40% or so of Yale's undergraduates who qualify for need-based financial aid, the "price" of a Yale education (i.e., tuition, room and board charges) is not as important as the "net cost" (i.e., student charges net of gift aid). For those students, therefore, the critical figure is not the tuition level but the self-help level and the expected family contribution. And for the other 60% of the student body who do not qualify for aid, we can assume that their families are not only able but by and large willing to meet the rising cost of a Yale education. Concern about tuition is therefore outweighed by considerations of quality and reputation. As long as the Yale College tuition rate does not get grossly out

of line with corresponding rates at other Ivy League schools, it simply will not be that important a factor in determining the composition of the student body. If anything, the argument can be made that we should increase tuition even more than we have in the past, and use the additional income to improve the quality of undergraduate education at Yale and the financial aid packages of students who qualify for need-based aid.

NOTES

1. All calculations of constant dollars and real growth rates in this report are based on the GNP Implicit Price Deflator, a measure of overall price inflation in the economy. A discussion of the relative merits of this and several alternative measures of inflation (e.g., the Consumer Price Index or the Higher Education Price Index) is beyond the scope of this paper. The general conclusions drawn here, however, are little different from conclusions based on analyses using one of those other measures.

2. See Van Alstyne (1979) and McPherson (1978) for a more detailed discussion of several studies related to this question.

3. Several sources of statistics about average student charges at different types of schools are available. Since those sources often differ in their methods for calculating averages, their results do not always agree. The information on student charges presented here is taken from reports by Kent Halstead of the Department of HEW. It represents average tuition and room and board charges weighted by enrollment--i.e., charges at large schools have a greater influence on the averages than do charges at small schools. Thus the averages are calculated from the students' rather than from the institutions' point of view.

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